

151340

BOARD
REVIEW
SERIES

Full Text
Provided
Online!

PHYSIOLOGY

CASES AND PROBLEMS 3RD EDITION

Linda S. Costanzo

- Case-based coverage of the physiology concepts most relevant for course exams and Step 1
- Thought-provoking questions with complete explanations
- Integrative thinking and problem-solving exercises
- Numerous diagrams and illustrations
- Access to fully searchable text and images online



Wolters Kluwer
Health

Lippincott
Williams & Wilkins

thePoint 

Preface ix

Acknowledgments xi

1. Cellular and Autonomic Physiology	1
Case 1 Permeability and Simple Diffusion	2
Case 2 Osmolarity, Osmotic Pressure, and Osmosis	7
Case 3 Nernst Equation and Equilibrium Potentials	13
Case 4 Primary Hypokalemic Periodic Paralysis	19
Case 5 Epidural Anesthesia: Effect of Lidocaine on Nerve Action Potentials	24
Case 6 Multiple Sclerosis: Myelin and Conduction Velocity	28
Case 7 Myasthenia Gravis: Neuromuscular Transmission	32
Case 8 Pheochromocytoma: Effects of Catecholamines	36
Case 9 Shy-Drager Syndrome: Central Autonomic Failure	42
2. Cardiovascular Physiology	47
Case 10 Essential Cardiovascular Calculations	48
Case 11 Ventricular Pressure–Volume Loops	57
Case 12 Responses to Changes in Posture	64
Case 13 Cardiovascular Responses to Exercise	69
Case 14 Renovascular Hypertension: The Renin–Angiotensin–Aldosterone System	74
Case 15 Hypovolemic Shock: Regulation of Blood Pressure	79
Case 16 Primary Pulmonary Hypertension: Right Ventricular Failure	86
Case 17 Myocardial Infarction: Left Ventricular Failure	91
Case 18 Ventricular Septal Defect	97
Case 19 Aortic Stenosis	101
Case 20 Atrioventricular Conduction Block	105
3. Respiratory Physiology	109
Case 21 Essential Respiratory Calculations: Lung Volumes, Dead Space, and Alveolar Ventilation	110
Case 22 Essential Respiratory Calculations: Gases and Gas Exchange	116
Case 23 Ascent to High Altitude	122
Case 24 Asthma: Obstructive Lung Disease	128
Case 25 Chronic Obstructive Pulmonary Disease	139
Case 26 Interstitial Fibrosis: Restrictive Lung Disease	146
Case 27 Carbon Monoxide Poisoning	153
Case 28 Pneumothorax	157

4. Renal and Acid–Base Physiology161

- Case 29** Essential Calculations in Renal Physiology 162
Case 30 Essential Calculations in Acid–Base Physiology 170
Case 31 Glucosuria: Diabetes Mellitus 175
Case 32 Hyperaldosteronism: Conn’s Syndrome 181
Case 33 Central Diabetes Insipidus 190
Case 34 Syndrome of Inappropriate Antidiuretic Hormone 198
Case 35 Generalized Edema: Nephrotic Syndrome 202
Case 36 Metabolic Acidosis: Diabetic Ketoacidosis 208
Case 37 Metabolic Acidosis: Diarrhea 215
Case 38 Metabolic Acidosis: Methanol Poisoning 219
Case 39 Metabolic Alkalosis: Vomiting 223
Case 40 Respiratory Acidosis: Chronic Obstructive Pulmonary Disease 230
Case 41 Respiratory Alkalosis: Hysterical Hyperventilation 234

5. Gastrointestinal Physiology239

- Case 42** Difficulty in Swallowing: Achalasia 240
Case 43 Malabsorption of Carbohydrates: Lactose Intolerance 244
Case 44 Peptic Ulcer Disease: Zollinger–Ellison Syndrome 249
Case 45 Peptic Ulcer Disease: *Helicobacter pylori* Infection 255
Case 46 Secretory Diarrhea: *Escherichia coli* Infection 259
Case 47 Bile Acid Deficiency: Ileal Resection 263

6. Endocrine and Reproductive Physiology269

- Case 48** Growth Hormone-Secreting Tumor: Acromegaly 270
Case 49 Galactorrhea and Amenorrhea: Prolactinoma 274
Case 50 Hyperthyroidism: Graves’ Disease 278
Case 51 Hypothyroidism: Autoimmune Thyroiditis 285
Case 52 Adrenocortical Excess: Cushing’s Syndrome 289
Case 53 Adrenocortical Insufficiency: Addison’s Disease 294
Case 54 Congenital Adrenal Hyperplasia: 21 β -Hydroxylase Deficiency 299
Case 55 Primary Hyperparathyroidism 302
Case 56 Humoral Hypercalcemia of Malignancy 306
Case 57 Hyperglycemia: Type I Diabetes Mellitus 310
Case 58 Primary Amenorrhea: Androgen Insensitivity Syndrome 315
Case 59 Male Hypogonadism: Kallmann’s Syndrome 319
Case 60 Male Pseudohermaphroditism: 5 α -Reductase Deficiency 322